IN THE CLAIMS

The following is a complete list of the claims now pending; this listing replaces all earlier versions and listings of the claims.

Claim 1 (currently amended): A method of interpolating a first set of discrete sample values to generate a second set of discrete sample values using one of a plurality of interpolation kernels, said method comprising the steps of:

~~wherein the interpolation kernel is selected~~ identifying text and edge regions in the first set of discrete sample values depending on an edge strength indicator, an edge direction indicator and a local contrast indicator for each of the discrete sample values of the first set, ~~the local contrast indicator being used to indicate text regions represented by the first set of discrete sample values in order to optimize the selection of the interpolation kernel,~~;

combining the text and edge regions to form a kernel selection map;

cleaning the kernel selection map by re-orientating the edge regions according to an underlying edge direction; and

~~wherein the selection of~~ selecting the interpolation kernel ~~is performed~~ using [[a]] the cleaned kernel selection map ~~processed in accordance with a cleansing process such that the kernel selected for a particular discrete sample value of the first set is dependent on the kernel selected for a further discrete sample value adjacent to the particular discrete sample value~~ for use in interpolating the first set of discrete sample values to generate the second set of discrete sample values.

Claim 2 (previously presented): The method according to claim 1, wherein the plurality of interpolation kernels are each derived from a universal interpolation kernel, *h(s)*.

Claim 3 (currently amended): The method according to claim 1, wherein the plurality of kernels are given by:

$$h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\left((1 - 2\theta/\pi)s_x + (2\theta/\pi - 2)s_y\right)_{c=0.5} \cdot h(((2\theta/\pi)s_x + (2\theta/\pi - 1)s_y)w(\theta))_{c=0} \right\}$$

$$h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h((1 - 2\theta/\pi)s_x + (2\theta/\pi)s_y)_{c=0.5} \cdot h(((2\theta/\pi)s_x + (2\theta/\pi - 1)s_y)w(\theta))_{c=0} \right\}$$

$$h(s_x, s_y)_{\pi/2 < \theta < \pi} = \frac{1}{\sqrt{2}} \left\{ h\left((2\theta/\pi - 1)s_x + (2\theta/\pi - 2)s_y\right)_{c=0.5} \cdot h(((2\theta/\pi - 2)s_x + (1 - 2\theta/\pi)s_y)w(\theta))_{c=0} \right\},$$

and wherein *h(s)* is a universal interpolation kernel, $s_x = x/\Delta x$ and $s_y = y/\Delta y$ are re-sampling distances in the horizontal and vertical directions, respectively, and $\cdot$ indicates matrix multiplication.

Claim 4 (currently amended): The method according to claim 1, wherein the plurality of kernels are given by:

$$h(s) = \begin{cases} (2 - \frac{3}{2}b - c)|s|^3 + (-3 + 2b + c)|s|^2 + (1 - \frac{1}{3}b), & |s| \leq 1 \\ (-\frac{1}{6}b - c)|s|^3 + (b + 5c)|s|^2 + (-2b - 8c)|s| + (\frac{4}{3}b + 4c), & 1 < |s| \leq 2 \\ 0, & Otherwise \end{cases}$$

$$h(s) = \begin{cases} 1, & -d < |s| \leq d \\ 0, & (1 - d) \geq s > (1 - d) \\ 2\left|\frac{s - d}{1 - 2d}\right|^3 - 3\left|\frac{s - d}{1 - 2d}\right|^2 + 1, \end{cases}$$

$$h(s_x, s_y)_{\theta=0} = \frac{1}{\sqrt{2}}\left\{ h(s_x)_{c=0.5} \cdot h(s_y)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/2} = \frac{1}{\sqrt{2}}\left\{ h(s_x)_{c=0} \cdot h(s_y)_{c=0.5} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/4} = \frac{1}{\sqrt{2}}\left\{ h\left(\frac{s_x + s_y}{2}\right)_{c=0.5} \cdot h\left(\frac{s_x - s_y}{\sqrt{2}}\right)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=3\pi/4} = \frac{1}{\sqrt{2}}\left\{ h\left(\frac{s_x + s_y}{\sqrt{2}}\right)_{c=0} \cdot h\left(\frac{s_x - s_y}{2}\right)_{c=0.5} \right\},$$

and wherein h(s) is a modified cubic kernel, $s_x = x / \Delta x$ and $s_y = y / \Delta y$ are re-sampling distances in

the horizontal and vertical directions, respectively, and • indicates matrix multiplication.

Claim 5 (previously presented): The method according to claim 1, wherein the

first set of discrete sample values are at a different resolution to the second set of discrete sample

values.

Claim 6 (canceled)

Claim 7 (previously presented): The method according to claim 1, wherein one or more of the indicators are processed using a morphological process.

Claims 8 and 9 (canceled)

Claim 10 (currently amended): A method of interpolating image data, said method comprising the steps of:

accessing a first set of discrete sample values of the image data;

identifying text and edge regions in the first set of discrete sample values depending on an edge strength indicator, and edge direction indicator and a local contrast indicator associated with each of the discrete sample values of the first ste;

combining the text and edge regions to form a kernel selection map;

cleaning the kernel selection map by re-orientating the edge regions according to an underlying edge direction;

calculating kernel values for each of the discrete sample values using one of a plurality of kernels, depending upon an edge orientation indicator, an edge strength indicator, and a local contrast indicator for each of the discrete sample values, wherein the local contrast indicator is used to indicate text regions represented by the first set of discrete sample values in order to optimize selection of the interpolation kernel used to calculate the kernel values, and wherein the one kernel is selected from the plurality of kernels using [[a]] the cleaned

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kernel selection map ~~processed in accordance with a cleaning process such that the kernel~~

~~selected for a particular discrete sample value of the first set is dependent on the kernel selected~~

~~for a further discrete sample value adjacent to the particular discrete sample value~~; and

convolving the kernel values with the discrete sample values to provide

a second set of discrete sample values.

Claim 11 (previously presented): The method according to claim 10, wherein

the plurality of interpolation kernels are each derived from a universal interpolation kernel, $h(s)$.

Claim 12 (previously presented): The method according to claim 10, wherein

the plurality of kernels are given by:

$$h(s_x, s_y)_{0 \leq \theta \leq \pi/2} = \frac{1}{\sqrt{2}} \left\{ h((1 - 2\theta/\pi)s_x + (2\theta/\pi)s_y)_{c=0.5} \cdot h(((2\theta/\pi)s_x + (2\theta/\pi - 1)s_y)w(\theta))_{c=0} \right\}$$

$$h(s_x, s_y)_{\pi/2 < \theta < \pi} = \frac{1}{\sqrt{2}} \left\{ h\left((2\theta/\pi - 1)s_x + (2\theta/\pi - 2)s_y\right)_{c=0.5} \cdot h(((2\theta/\pi - 2)s_x + (1 - 2\theta/\pi)s_y)w(\theta))_{c=0} \right\},$$

and wherein h(s) is a universal interpolation kernel, $s_x = x/\Delta x$ and $s_y = y/\Delta y$ are re-sampling

distances in the horizontal and vertical directions, respectively, and • indicates matrix

multiplication.

Claim 13 (currently amended): The method according to claim 10, wherein the

plurality of kernels are given by:

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$$h(s) = \begin{cases} (2 - \dfrac{3}{2}b - c)|s|^3 + (-3 + 2b + c)|s|^2 + (1 - \dfrac{1}{3}b), & |s| \le 1 \\[2mm] (-\dfrac{1}{6}b - c)|s|^3 + (b + 5c)|s|^2 + (-2b - 8c)|s| + (\dfrac{4}{3}b + 4c), & 1 < |s| \le 2 \\[2mm] 0, & Otherwise \end{cases}$$

$$h(s) = \begin{cases} 1, -d < s \le d \\ 0, (1 - d) \ge s > (1 - d) \\ 2\left|\dfrac{s - d}{1 - 2d}\right|^3 - 3\left|\dfrac{s - d}{1 - 2d}\right|^2 + 1, \end{cases}$$

$$h(s_x, s_y)_{\theta=0} = \frac{1}{\sqrt{2}}\left\{h(s_x)_{c=0.5} \cdot h(s_y)_{c=0}\right\}$$

$$h(s_x, s_y)_{\theta=\pi/2} = \frac{1}{\sqrt{2}}\left\{h(s_x)_{c=0} \cdot h(s_y)_{c=0.5}\right\}$$

$$h(s_x, s_y)_{\theta=\pi/4} = \frac{1}{\sqrt{2}}\left\{h\left(\frac{s_x + s_y}{2}\right)_{c=0.5} \cdot h\left(\frac{s_x - s_y}{\sqrt{2}}\right)_{c=0}\right\}$$

$$h(s_x, s_y)_{\theta=3\pi/4} = \frac{1}{\sqrt{2}}\left\{h\left(\frac{s_x + s_y}{\sqrt{2}}\right)_{c=0} \cdot h\left(\frac{s_x - s_y}{2}\right)_{c=0.5}\right\},$$

and wherein *h(s)* is a modified cubic kernel, $s_x = x / \Delta x$ and $s_y = y / \Delta y$ are re-sampling

distances in the horizontal and vertical directions, respectively, and [[.]] $\bullet$ indicates matrix

multiplication.

Claim 14 (previously presented): The method according to claim 10, wherein the first set of discrete sample values are at a different resolution to the second set of discrete sample values.

Claim 15 (currently amended): An apparatus for interpolating image data, said apparatus comprising:

means for accessing a first set of discrete sample values of the image data;

text identifying means for identifying text and edge regions in the first set of discrete sample values depending on an edge strength indicator, an edge direction indicator, and a local contrast indicator associated with each of the discrete sample values of the first set;

kernel selection map means for combining the text and edge regions to form a kernel selection map;

cleaning means for cleaning the kernel selection map by re-orientating the edge regions according to an underlying edge direction;

calculator means for calculating kernel values for each of the discrete sample values using one of a plurality of kernels, ~~depending upon an edge orientation indicators,~~ ~~an edge strength indicator, and a local contrast indicator for each of the discrete sample values,~~ ~~wherein the local contrast indicator is used to indicate text regions represented by the first set of~~ ~~discrete sample values in order to optimize selection of the interpolation kernel used to calculate~~ ~~the kernel values, and~~ wherein the one kernel is selected from the plurality of kernels using [[a]]

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the cleaned kernel selection map ~~processed in accordance with a cleaning process such that the kernel selected for a particular discrete sample value of the first set is dependent on the kernel selected for a further discrete sample value adjacent to the particular discrete sample value~~; and

convolution means for convolving the kernel values with the discrete sample values to provide a second set of discrete sample values.

Claim 16 (previously presented): The apparatus according to claim 15, wherein the plurality of interpolation kernels are each derived from a universal interpolation kernel, $h(s)$.

Claim 17 (currently amended): The apparatus according to claim 15, wherein the plurality of kernels are given by:

$$~~h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\big((1 - 2\theta/\pi)s_x + (2\theta/\pi)s_y\big)_{c=0.5} \cdot h\big(((2\theta/\pi)s_x + (2\theta/\pi - 1)s_y)w(\theta)\big)_{c=0} \right\}~~$$

$$h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\big((1 - 2\theta/\pi)s_x + (2\theta/\pi)s_y\big)_{c=0.5} \cdot h\big(((2\theta/\pi)s_x + (2\theta/\pi - 1)s_y)w(\theta)\big)_{c=0} \right\}$$

$$~~h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\big((1 - 2/\pi)s_x + (2\theta/\pi)s_y\big)_{c=0.5} \cdot h\big(((2\theta/\pi)s_x + (2\theta/\pi)s_y)w(\theta)\big)_{c=0} \right\}~~$$

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$$h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\Big((2\theta/\pi - 1)s_x + (2\theta/\pi - 2)s_y\Big)_{c=0.5} \cdot h\big(((2\theta/\pi - 2)s_x + (1 - 2\theta/\pi)s_y)w(\theta)\big)_{c=0} \right\},$$

and wherein $h(s)$ is a universal interpolation kernel, $s_x = x/\Delta x$ and $s_y = y/\Delta y$ are re-sampling distances in the horizontal and vertical directions, respectively, and $\cdot$ indicates matrix multiplication.

Claim 18 (currently amended): The apparatus according to claim 15, wherein the plurality of kernels are given by:

$$h(s) = \begin{cases} (2 - \frac{3}{2}b - c)|s|^3 + (-3 + 2b + c)|s|^2 + (1 - \frac{1}{3}b), & |s| \le 1 \\ (-\frac{1}{6}b - c)|s|^3 + (b + 5c)|s|^2 + (-2b - 8c)|s| + (\frac{4}{3}b + 4c), & 1 < |s| \le 2 \\ 0, & Otherwise \end{cases}$$

$$h(s) = \begin{cases} 1, & -d < s \le d \\ 0, & (1 - d) \ge s > (1 - d) \\ 2\left|\frac{s - d}{1 - 2d}\right|^3 - 3\left|\frac{s - d}{1 - 2d}\right|^2 + 1, \end{cases}$$

$$h(s_x, s_y)_{\theta=0} = \frac{1}{\sqrt{2}} \left\{ h(s_x)_{c=0.5} \cdot h(s_y)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/2} = \frac{1}{\sqrt{2}} \left\{ h(s_x)_{c=0} \cdot h(s_y)_{c=0.5} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/4} = \frac{1}{\sqrt{2}} \left\{ h\left(\frac{s_x + s_y}{2}\right)_{c=0.5} \cdot h\left(\frac{s_x - s_y}{\sqrt{2}}\right)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=3\pi/4} = \frac{1}{\sqrt{2}} \left\{ h\left(\frac{s_x + s_y}{\sqrt{2}}\right)_{c=0} \cdot h\left(\frac{s_x - s_y}{2}\right)_{c=0.5} \right\},$$

and wherein $h(s)$ is a modified cubic kernel, $s_x = x / \Delta x$ and $s_y = y / \Delta y$ are re-sampling distances in the horizontal and vertical directions, respectively, and • indicates matrix multiplication.

Claim 19 (previously presented): The method according to claim 15, wherein the first set of discrete sample values are at a different resolution to the second set of discrete sample values.

Claim 20 (currently amended): A computer readable medium for storing a program for an apparatus which processes data, said processing comprising a method of interpolating image data, said program comprising:

code for accessing a first set of discrete sample values of the image data;

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code for identifying text and edge regions in the first set of discrete sample values depending on an edge strength indicator, an edge direction indicator and a local contrast indicator associated with each of the discrete sample values of the first set;

code for combining the text and edge regions to form a kernel selection map;

code for cleaning the kernel selection map by re-orientating the edge regions according to an underlying edge direction;

code for calculating kernel values for each of the discrete sample values using one of a plurality of kernels, ~~depending upon an edge orientation indicator, an edge strength indicator, and a local contrast indicator for each of the discrete sample values of the first set, wherein the local contrast indicator is used to indicate text regions represented by the first set of discrete sample values in order to optimize selection of the interpolation kernel used to calculate the kernel values, and~~ wherein the one kernel is selected from the plurality of kernels using [[a]] the cleaned kernel selection map ~~processed in accordance with a cleaning process such that the kernel selected for a particular discrete sample value of the first set is dependent on the kernel selected for a further discrete sample value adjacent to the particular discrete sample value~~; and

code for convolving the kernel values with the discrete sample values to provide a second set of discrete sample values.

Claim 21 (previously presented): The computer readable medium according to claim 20, wherein the plurality of interpolation kernels are each derived from a universal interpolation kernel, $h(s)$.

Claim 22 (currently amended): The computer readable medium according to claim 20, wherein the plurality of kernels are given by:

$$h(s_x, s_y)_{0 \le \theta \le \pi/2} = \frac{1}{\sqrt{2}} \left\{ h\big((1 - 2\theta/\pi)s_x + (2\theta/\pi)s_y\big)_{c=0.5} \cdot h\big(((2\theta/\pi)s_x + 2\theta/\pi - 1)s_y)w(\theta)\big)_{c=0} \right\}$$

$$h(s_x, s_y)_{\pi/2 \le \theta \le \pi} = \frac{1}{\sqrt{2}} \left\{ h\big((2\theta/\pi)s_x + (2\theta/\pi - 2)s_y\big)_{c=0.5} \cdot h\big(((2\theta/\pi)s_x(1 - 2\theta/\pi)s_y)w(\theta)\big)_{c=0} \right\}$$

$$h(s_x, s_y)_{\pi/2 < \theta < \pi} = \frac{1}{\sqrt{2}} \left\{ h\big((2\theta/\pi - 1)s_x + (2\theta/\pi - 2)s_y\big)_{c=0.5} \cdot h(((2\theta/\pi - 2)s_x + (1 - 2\theta/\pi)s_y)w(\theta))_{c=0} \right\},$$

and wherein $h(s)$ is a universal interpolation kernel, $s_x = x/\Delta x$ and $s_y = y/\Delta y$ are re-sampling distances in the horizontal and vertical directions, respectively, and • indicates matrix multiplication.

Claim 23 (currently amended): The computer readable medium according to claim 20, wherein the plurality of kernels are given by:

$$h(s) = \begin{cases} (2 - \dfrac{3}{2}b - c)|s|^3 + (-3 + 2b + c)|s|^2 + (1 - \dfrac{1}{3}b), & |s| \le 1 \\[2mm] (-\dfrac{1}{6}b - c)|s|^3 + (b + 5c)|s|^2 + (-2b - 8c)|s| + (\dfrac{4}{3}b + 4c), & 1 < |s| \le 2 \\[2mm] 0, & Otherwise \end{cases}$$

$$h(s) = \begin{cases} 1, & -d < s \le d \\[2mm] 0, & (1 - d) \ge s > (1 - d) \\[2mm] 2\left|\dfrac{s - d}{1 - 2d}\right|^3 - 3\left|\dfrac{s - d}{1 - 2d}\right|^2 + 1, \end{cases}$$

$$h(s_x, s_y)_{\theta=0} = \frac{1}{\sqrt{2}}\left\{ h(s_x)_{c=0.5} \cdot h(s_y)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/2} = \frac{1}{\sqrt{2}}\left\{ h(s_x)_{c=0} \cdot h(s_y)_{c=0.5} \right\}$$

$$h(s_x, s_y)_{\theta=\pi/4} = \frac{1}{\sqrt{2}}\left\{ h\!\left(\frac{s_x + s_y}{2}\right)_{c=0.5} \cdot h\!\left(\frac{s_x - s_y}{\sqrt{2}}\right)_{c=0} \right\}$$

$$h(s_x, s_y)_{\theta=3\pi/4} = \frac{1}{\sqrt{2}}\left\{ h\!\left(\frac{s_x + s_y}{\sqrt{2}}\right)_{c=0} \cdot h\!\left(\frac{s_x - s_y}{2}\right)_{c=0.5} \right\},$$

and wherein $h(s)$ is a modified cubic kernel, $s_x = x / \Delta x$ and $s_y = y / \Delta y$ are re-sampling

distances in the horizontal and vertical directions, respectively, and [[.]] $\cdot$ indicates matrix

multiplication.

Claim 24 (previously presented): The computer readable medium according to claim 20, wherein the first set of discrete sample values are at a different resolution to the second set of discrete sample values.

Claims 25-104 (canceled)